INTEGRALS WITH $u$-SUBSTITUTION

1. Examine the given integral and pick the integral formula you think will work.

2. Based on the formula you picked, determine $u = g(x)$.

3. Calculate $du = g'(x)dx$.

4. Substitute $u$ and $du$ into the given integrand. At this point, the variable $x$ should no longer appear in the integrand.

5. Double check that the integral you now have, except for possibly a constant multiple, is an EXACT match to the integral formula you picked. (If it isn't, begin again.)

6. Apply the selected integral formula to obtain and antiderivative $F(u) + C$, in terms of the variable $u$.

7. In your answer, substitute $g(x)$ for $u$; so the final answer is $F(g(x)) + C$. The variable $u$ should not be present in the final answer.